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the amino acid sequence of mature EPSPS sequence, to encode serine.

43. A nucleic acid molecule as claimed in claim 42 wherein the modified nucleic acid molecule is of maize origin.

44. A nucleic acid having the sequence of SEQ ID NO: 4.

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45. A vector comprising the following components, which are operably associated in the direction of transcription:

(a) a promoter functional in a plant cell; and

modified Plant DNA Molecule

(b) the nucleic acid of claim 42.

46. A vector of claim 45 further comprising nucleic acid encoding a chloroplast transit peptide operably associated with, and in the order of transcription between, the promoter functional in a plant cell and the nucleic acid of claim 42.

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47. A plant cell comprising a vector comprising the following components, which are operably associated in the direction of transcription:

(a) a promoter functional in a plant cell;

(b) nucleic acid encoding a chloroplast transit peptide;

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(c) a modified nucleic acid molecule of maize origin encoding an EPSPS enzyme, the modifications comprising:

a first modification, at the position which normally encodes a threonine at position 102 of the amino acid sequence of mature EPSPS sequence, to encode isoleucine; and

a second modification, at the position which normally encodes a proline at position 106 of the amino acid sequence of mature EPSPS sequence, to encode serine; and

(d) an untranslated transcription termination signal region.

48. A plant cell of claim 47 which is a monocot with increased tolerance to glyphosate herbicides.

49. A plant cell of claim 47 which is a dicot with increased tolerance to glyphosate herbicides.

50. A transgenic plant comprising a vector comprising the following components, which are operably associated in the direction of transcription:

(a) a promoter functional in a plant cell;

(b) nucleic acid encoding a chloroplast transit peptide;

(c) a modified nucleic acid molecule of plant origin encoding an EPSPS enzyme, the modifications comprising:

a first modification, at the position which normally encodes a threonine at position 102 of the amino acid sequence of mature EPSPS sequence, to encode isoleucine; and

a second modification, at the position which normally encodes a proline at position 106 of the amino acid sequence of mature EPSPS sequence, to encode serine; and

(d) an untranslated transcription termination signal region.

51. A transgenic plant of claim 50 which is a monocot with increased tolerance to glyphosate herbicides.

52. A transgenic plant of claim 50 which is a dicot with increased tolerance to glyphosate herbicides.

53. A method for selectively controlling plants which method comprises the steps of:

a) planting crop seeds or plants which have increased glyphosate tolerance as a result of a chimeric gene being inserted into said crop seed or plant, said chimeric gene having

(i) a promoter region functional in a plant cell; and

(ii) a nucleic acid molecule of plant origin encoding a modified EPSPS enzyme, the modifications comprising:

a first modification, at the position which normally encodes a threonine at position 102 of the amino acid sequence of mature EPSPS sequence, to encode isoleucine; and

a second modification, at the position which normally encodes a proline at position 106 of the amino acid sequence of mature EPSPS sequence, to encode serine; and

(iii) an untranslated transcription termination signal region; and

b) applying to said plants a sufficient amount of glyphosate to control said untransformed plants without significantly affecting said plants that comprise the chimeric gene.

REMARKS

Applicants respond to the final rejection of June 14, 2001, by replacement of the abstract and submission of new claims. Also, disclosure of information from a related legal proceedings is